

Research Progress on the Relationship Between Childhood Trauma and Non-Suicidal Self-Injury in Adolescents

Jinming Wang¹, Lizhu Jiang^{2*}

1. Dali University, Dali 671000, China.

2. Yunnan Third People's Hospital, Yunnan, Kunming 650011, China.

Abstract: Childhood trauma is an important predictor of non-suicidal self-injury in adolescents, which can positively predict the occurrence of non-suicidal self-injury in adolescents. Therefore, it is particularly important to fully understand the relationship between childhood trauma and non-suicidal self-injury in adolescents. This article reviews the research results on the relationship between childhood trauma and non-suicidal self-injury in adolescents at home and abroad, and provides a theoretical basis for exploring the intervention direction of non-suicidal self-injury in adolescents.

Keywords: Youth; Non-Suicidal Self-Injury; NSSI; Childhood Trauma; Intermediary Factors

Introduction

Non-suicidal self-injury (NSSI) refers to the use of a series of non-social and culturally recognized methods to intentionally, directly and repeatedly injure one's own body tissue without suicidal intention^[1], including cutting, scratching, burning, biting and scratching the skin. It is a kind of pathological psychological behavior, which is related to psychosocial factors, genetic and biological factors and mental disorders^[2]. NSSI is the most common in adolescents, with a lifetime prevalence of 17.2 %^[3]. There are great differences in data between different countries and different samples. In adolescent psychiatric samples, the prevalence of primary NSSI is as high as 60 %, while the prevalence of repeated NSSI is about 50 %^[4]. The epidemiological survey of 61767 adolescents in the United States showed that the annual detection rate of NSSI was about 7.3 %^[5]. A survey of 1339 adolescents in Austria, Germany and Switzerland found that the prevalence of NSSI at 6 months was 7.6 % -14.6 %^[6]. A meta-study on the epidemiological characteristics of NSSI in Chinese middle school students showed that the total detection rate of NSSI in Chinese adolescents was 27.4 %^[7], which was significantly higher than that in Western countries. Studies have shown that the average age of NSSI in adolescents is 9.5-14 years old, reaching a peak at 15 years old, and then the incidence of NSSI gradually decreases with age^[8]. NSSI is a significant predictor of suicide. Individuals who die of suicide will have 8-25 NSSI behaviors before suicide. Their suicidal thoughts and suicidal behaviors are 50-100 times that of ordinary adolescents^[9]. The incidence of suicide accidental death is 10 %^[10], and the success rate of suicide within 1 year is 439.1 / 100,000 people. The suicide risk of NSSI is 37-46 times that of the normal group^[11]. NSSI can not only appear in people with mental disorders such as borderline personality disorder, anxiety and depression disorder, post-traumatic stress disorder, but also can be diagnosed alone without comorbid mental illness. Therefore, NSSI has become a major public health problem that threatens the physical and mental health of adolescents worldwide.

1. Childhood trauma and adolescent NSSI behavior

Childhood Trauma refers to the abuse and traumatic experience suffered before the age of 16, including physical abuse, emotional abuse, sexual abuse, physical neglect, emotional neglect and other forms^[12]. Childhood trauma has been identified as an important risk predictor for NSSI in adolescents^[13]. Childhood trauma experience can damage the individual's positive adaptation in motivation, attitude, emotion and other aspects, resulting in the lack of adaptive coping strategies, so NSSI is

used as an alternative compensation coping strategy under stress conditions^[14]. In addition, childhood trauma can also lead to emotional regulation disorders in adolescents, weakening their ability to cope with negative emotions, and thus easily resorting to NSSI behavior to vent negative emotions^[15]. A large number of studies have confirmed that childhood trauma can significantly positively predict adolescent NSSI^[13]. Brown et al. found that among individuals who have experienced self-injury, about 65 % of individuals have experienced at least one type of childhood trauma, and about 50 % of individuals have experienced multiple types of childhood trauma^[16]. Wang Xiaoyan and other studies have shown that all types of childhood abuse will increase the incidence of NSSI in middle school students in China, and various high-level forms of abuse are positively correlated with the increase of NSSI^[17]. Wan et al. showed that 89.4 % of middle school students had experienced one or more childhood trauma, of which 45.7 % had experienced childhood emotional abuse, 20.3 % had experienced physical abuse, 13.3 % had experienced sexual abuse, 64.2 % had experienced physical neglect, 58.5 % had experienced emotional neglect, and 46.3 % had experienced three or more childhood trauma^[18]. Duke et al. found that people with childhood traumatic experiences, regardless of the type of traumatic event, increased the risk of self-injury by 2.7 to 6.1 times^[19]. A longitudinal study in the United States showed that physical abuse was associated with NSSI, and childhood experience of physical neglect and abuse increased the risk of NSSI^[20]. A 2019 Chinese cross-sectional study of middle school students in rural areas showed that physical abuse significantly increased the incidence of NSSI among adolescents, and the more types of physical abuse experienced in childhood, the higher the risk of NSSI^[21]. An Austrian study of hospitalized patients showed that childhood trauma, especially emotional abuse, is a risk factor for NSSI^[22]. At the same time, a recent survey of junior high school students in China confirmed that childhood emotional abuse was positively correlated with NSSI^[23]. A Meta-analysis by Liu et al. showed that patients who had experienced childhood emotional abuse were 3.03 times more likely to have NSSI behavior than the normal group, and emotional abuse was most correlated with suicidal behavior^[24]. Another cross-sectional study of 5726 students in Anhui Province also showed that childhood emotional abuse and neglect were associated with highly lethal self-injury^[25]. Studies have confirmed that the emotional abuse suffered by the only child is directly related to its NSSI. At the same time, the study also shows that the only child is mainly due to poor emotional expression ability rather than weak emotional coping ability^[26]. A 2016 Australian study showed that sexual abuse experiences in childhood and adolescence also increased the risk of NSSI^[27]. This is consistent with a previous Finnish study, which also found gender differences, that being sexually abused can significantly increase girls' risk of NSSI^[28]. In addition, another study confirmed that sexual abuse is the only type of abuse that can predict women's NSSI and suicide attempts^[29]. A 2019 study also re-emphasized the predictive effect of sexual abuse on NSSI^[30].

2. Mediating factors of childhood trauma and adolescent NSSI behavior

In the existing research on the influence of childhood trauma on adolescents' NSSI behavior, factors such as social support, attachment pattern, emotion regulation and self-negative evaluation have been proved to mediate the influence of childhood trauma on adolescents' NSSI behavior.

2.1 Social support

A study on the relationship between adverse childhood experience and social support and adolescents' self-injury behavior and suicidal tendency showed that the more adverse childhood experience and the lower social support, the more likely it is to lead to NSSI, and suicidal ideation and suicidal attempts also increased significantly^[18]. The study also found that experiencing a variety of childhood trauma and insufficient social support had a significantly stronger impact on girls' suicide attempts than boys, and childhood emotional abuse was more likely to increase the risk of NSSI, suicidal ideation and suicide attempts than other types of childhood adverse experiences. When subjected to emotional and physical abuse, girls are more likely to cause NSSI and suicide attempts than boys. But when emotionally neglected, boys are more likely to have suicidal thoughts than girls. Therefore, social support plays an intermediary role between bad childhood experience and NSSI. Studies have shown that children and adolescents with some form of social support are 26 % less likely to implement NSSI than their peers who lack social support^[31]. A 2019 study of Chinese college students also confirmed that social support plays a mediating role between childhood trauma and NSSI, and is more significant in the only child population^[32]. The only

child is often coddled by the family and has higher emotional expectations for the society^[33]. Therefore, in the face of childhood trauma, the only child is more vulnerable and less satisfied with his subjective feelings than the non-only child, which is more likely to lead to NSSI behavior.

2.2 Attachment pattern

Schore's psychoneurobiological model believes that people with insecure attachment in infancy have poor ability to develop effective emotion regulation skills^[34], showing a tendency to inhibit their emotions. Long-term inhibition of emotions will lead individuals to vent their negative emotions by self-injury. Studies such as Martin have shown that insecure attachment to caregivers moderates the impact of childhood trauma on self-injury behavior^[35]. Recent studies by Stagaki et al. also confirmed this view. This study shows that the relationship between childhood trauma and self-injury and suicidal behavior is partially mediated by mentalization and attachment^[36], and insecure attachment can easily lead to NSSI behavior.

2.3 Emotion regulation

Studies have shown that emotional abuse in the NSSI population is more common than other types of abuse, which directly proves that childhood emotional abuse is related to NSSI^[16]. NSSI occurs after the accumulation of childhood trauma as a strategy to regulate negative emotions. The relationship between childhood trauma, especially emotional abuse as an emotional stressor, and adolescent NSSI is partly mediated by the use of maladaptive emotion regulation strategies such as self-injury^[37]. A 2018 US study showed that childhood physical and emotional abuse, rather than sexual abuse, was significantly associated with the frequency of NSSI. In addition, emotion regulation mediated the relationship between childhood physical and emotional abuse and NSSI frequency^[38]. Another study on a sample of adolescents hospitalized for psychiatric treatment showed that childhood sexual abuse, physical abuse, and emotional abuse indirectly affected adolescents' NSSI behavior through emotional expression and emotional coping^[39]. The latest research results in 2022 once again confirmed that the relationship between all types of childhood trauma and NSSI behavior is completely mediated by emotional disorders^[40]. The above studies suggest that negative emotion regulation strategies can easily lead to NSSI behavior.

2.4 Self-negative evaluation

People who have suffered repeated insults, excessive criticism or some form of physical abuse in childhood will adopt a similar critical view of themselves by imitating the abuser's criticism and abuse behavior, resulting in a self-internalized critical cognitive style and NSSI as a form of self-punishment. Studies have shown that the relationship between childhood emotional abuse and adolescent NSSI behavior is mediated by self-critical cognitive style^[41]. This is consistent with a previous Australian study, which also found that women are more likely to cope with internal tension and pain through internalization (self-criticism), so self-criticism has the strongest impact on women's NSSI^[42].

2.5 Other

As a subtype of separation, depersonalization refers to the disconnection between one's body and / or mind. It is a self-conscious disorder characterized by a sense of separation and strangeness^[43]. Gómez et al. suggested that sexual abuse during adolescence, especially by intimate individuals, mediates NSSI through depersonalization^[30]. In 2015, a German study on women aged 18-66 years showed that separation can be used as an intermediary between childhood trauma and female NSSI^[44].

Individuals with self-injury have lower self-esteem than their peers^[45]. In 2020, a Chinese study on the mediating role of self-esteem in the relationship between childhood trauma and non-suicidal self-injury in adolescents confirmed that each childhood trauma was negatively correlated with self-esteem and positively correlated with NSSI, and self-esteem was negatively correlated with the frequency of NSSI^[46]. Therefore, the relationship between childhood trauma and NSSI is regulated by self-esteem. The study also found that in the relationship between different types of childhood trauma and NSSI, the mediating effect of self-esteem in boys and only-child groups was higher than that in girls and non-only-child groups.

In 2018, a German study showed that childhood emotional abuse was directly related to NSSI through a path analysis

model, while the effects of childhood sexual abuse and physical abuse on NSSI were completely mediated by depression and anxiety symptoms^[16].

3. Discussions

Children do not know how to deal with and express when they encounter childhood trauma such as domestic abuse or violence, and are easily ignored by the family, which leads to psychological symptoms such as flashbacks, fear, sadness or sleep problems. Strong traumatic experiences and a large number of bad emotions are stored in the long-term memory of the brain and always appear unintentionally. In adolescence, self-consciousness develops rapidly, but cognitive ability is insufficient, self-control ability is lacking, and negative emotions such as inner tension and depression accumulate in snowballs. It is easy to adopt negative coping styles such as self-injury, which is not only not conducive to the physical and mental development of adolescents, but also causes serious burden on families. Studies have shown that most adolescents regard NSSI behavior as a strategy to reduce stress and improve mood. NSSI can reduce negative emotions and relieve mental numbness, and can also be used as a way to solve trauma^[47]. These secondary benefits make individuals who have NSSI behavior repeatedly and difficult to control NSSI behavior. In addition, influenced by the traditional family concept, most parents can not identify the bad psychology of teenagers as early as possible, and think that they just think too much, which leads to more serious consequences such as the occurrence of NSSI and even suicide. Some parents think that it is unnecessary or even shameful to turn to a psychologist. Therefore, the actual help-seeking rate of NSSI in Chinese adolescents is lower.

At present, there is no unified plan for the treatment of NSSI in adolescents. Cognitive behavioral therapy, dialectical behavioral therapy and other psychotherapy are often used for intervention, but their prevention is more important. By summarizing the results of previous studies, this paper explores the influence of mediating factors such as social support and emotion regulation on the relationship between childhood trauma and NSSI, aiming to provide theoretical basis for the treatment of adolescent NSSI. For NSSI adolescents, the social level should give more tolerance and understanding, increase their social support, regularly screen NSSI high-risk groups and seek professional help ; schools and other educational institutions should provide regular psychological counseling, early identification of adolescent emotional distress, prevention of adolescent NSSI ; in terms of family, we should learn the characteristics of physical and mental development of adolescents and NSSI related knowledge to help them ease and cope with bad mood distress. Parents should set an example to build a harmonious family atmosphere. In the follow-up study, it is suggested to carry out a comparative study of NSSI among adolescents in different regions of China, so as to identify and prevent NSSI in adolescents as early as possible for effective prevention and control measures. At the same time, it is particularly important to explore more effective treatment options for adolescent NSSI and clinical verification from the mediating factors such as social support, attachment patterns, emotional regulation and self-negative evaluation.

References

- [1] Rodríguez-Blanco L, Carballo-Belloso JJ, Santiago DL, et al. A longitudinal study of adolescents engaged in Non-Suicidal Self Injury (NSSI): clinical follow-up from adolescence to young adulthood[J]. *Psychiatry Research*, 2021:113711.
- [2] Lewis SP, Heath NL. Nonsuicidal self-injury among youth[J]. *J Pediatr*, 2015, 166 (3): 526-530.
- [3] Swannel SV, Martin GE, Page A, et al. Prevalence of nonsuicidal self-injury in nonclinical samples: systematic review, meta-analysis and meta-regression[J]. *Suicide Life Threat Behav*, 2014, 44(3): 273-303.
- [4] Kaess M, Parzer P, Mattern M, et al. Adverse childhood experiences and their impact on frequency, severity, and the individual function of nonsuicidal self-injury in youth[J]. *Psychiatry Res*. 2013; 206(2-3):265-72.
- [5] Taliaferro LA, Muehlenkamp JJ. Risk factors associated with self-injurious behavior among a national sample of undergraduate college students[J]. *J Am Coll Health*, 2015, 63 (1): 40-48.
- [6] Plener PL, Fischer CJ, In-Albon T, et al. Adolescent non-suicidal self-injury (NSSI) in German-speaking countries: comparing prevalence rates from three community samples[J]. *Soc Psychiatry Psychiatr Epidemiol*, 2013, 48(9):

1439-1445.

[7] Han AZ, Xu G, Su PY. A Meta-analysis of the epidemiological characteristics of non-suicidal self-injury among middle school students in mainland China [J]. Chinese School Health, 2017, 38 (11): 1665-1670.

[8] Lin MJ. The status quo of non-suicidal self-injury behavior of nursing students and its relationship with alexithymia and parenting style [D]. Shandong University, 2018.

[9] Liu BP. Study on the incidence and related factors of repetitive behavior, suicide and other causes of death after self-harm [D]. Jinan: Shandong University, 2020.

[10] Wang YP, Zhu XZ, Yi JY, et al. Self-injurious suicidal behavior among middle school students [J]. Chinese Journal of Clinical Psychology, 2012,20 (05) : 666-667 + 683.

[11] Deng R, Yang J. Longitudinal follow-up analysis of the relationship between non-suicidal self-injury and suicide risk [J]. International Journal of Psychiatry, 2021, 48 (6): 984-986.

[12] David PB, Judith AS, Michael DN, et al. Development and Validation of a Brief Screening Version of the Childhood Trauma Questionnaire[J]. Child Abuse & Neglect, 2003, (2).

[13] Wan Y, Chen R, Wang S, et al. Associations of Coping Styles with Non-Suicidal Self-Injury in Adolescents: Do They Vary with Gender and Adverse Childhood Experiences? [J]. Child Abuse & Neglect,2020,(06).

[14] Yates TM. The Developmental Psychopathology of Self — Injurious Behavior: Compensatory Regulation in Posttraumatic Adaptation[J]. Clinical Psychology Review, 2004, (1).

[15] Chapman AL, Gratz KL, Brown MZ. Solving the Puzzle of Deliberate Self-Harm: The Experiential Avoidance Model[J]. Behaviour Research and Therapy, 2006, (3).

[16] Brown RC, Stefanie H, Andreas W, et al. The impact of child maltreatment on non-suicidal self-injury: data from a representative sample of the general population[J]. BMC Psychiatry, 2018, 18(1):181.

[17] Wang XY, Jiang ZC, Xu HQ, et al. The association between childhood abuse and non-suicidal self-injury among middle school students [J]. School Health in China, 2020, 41 (4): 514-517.

[18] Wan Y, Chen R, Ma S, et al. Associations of adverse childhood experiences and social support with self-injurious behaviour and suicidality in adolescents[J]. Cambridge University Press, 2019 (3): 146-152.

[19] Duke NN, Pettingell SL, McMorris BJ, Borowsky IW. Adolescent violence perpetration: associations with multiple types of adverse childhood experiences[J]. Pediatrics, 2010, 125: e778-786.

[20] Paul E, Ortin A. Correlates of suicidal ideation and self- harm in early childhood in a cohort at risk for child abuse and neglect[J]. Arch Suicide Res, 2019, 23(1): 134-150.

[21] Chen YR, Zhang M, Guo HD, et al. Association between adolescent neglect and physical abuse and non-suicidal self-injury in rural China [J].School Health in China, 2019,40 (07): 984-986 + 990.

[22] Bernegger A, Kienesberger K, Carlberg L, et al. Influence of Sex on Suicidal Phenotypes in Affective Disorder Patients with Traumatic Childhood Experiences[J]. PLoS ONE, 2015,10(9): e0137763.

[23] Gu H, Ma P, Xia T. Childhood emotional abuse and adolescent nonsuicidal self-injury: The mediating role of identity confusion and moderating role of rumination[J]. Child Abuse Negl, 2020,106:104474.

[24] Liu RT, Scopelliti KM, Pittman SK, et al. Childhood maltreatment and non-suicidal self-injury: a systematic review and meta-analysis[J]. Lancet Psychiatry, 2018, 5(1): 51-64.

[25] Power, Jenelle, Gobeil, et al.Childhood Abuse,Nonsuicidal Self-Injury, and Suicide Attempts: An Exploration of Gender Differences in Incarcerated Adults[J]. Suicide & Life-Threatening Behavior,2016:1-7.

[26] Thomassin K, Shaffer A, Madden A, et al. Specificity of childhood maltreatment and emotion deficit in nonsuicidal self-injury in an inpatient sample of youth[J]. Psychiatry Res,2016,244:103- 108.

[27] Tatnell R, Hasking P, Newman L, et al. Attachment, Emotion Regulation, Childhood Abuse and Assault: Examining Predictors of NSSI Among Adolescents[J]. Arch Suicide Res, 2016:1-11.

[28] Isohookana R, Riala K, Hakko H, Räsänen P. Adverse childhood experiences and suicidal behavior of adolescent

psychiatric inpatients[J]. *Eur Child Adolesc Psychiatry*. 2013, 22: 13-22.

[29] Han A, Wang G, Xu G, Su P. A self-harm series and its relationship with childhood adversity among adolescents in mainland China: a cross sectional study[J]. *BMC Psychiatry*, 2018, 18:28.

[30] Gómez JM. High betrayal adolescent sexual abuse and non-suicidal self-injury: The role of depersonalization in emerging adults[J]. *J Child Sex Abus*, 2019, 28(3): 318-332.

[31] Baiden P, Stewart SL, Fallon B. The role of adverse childhood experiences as determinants of non-suicidal self-injury among children and adolescents referred to community and inpatient mental health settings[J]. *Child Abuse Negl*, 2017, 69: 163-76.

[32] Xu H, Song X, Wang S, et al. Mediating Effect of Social Support in the Relationship Between Childhood Abuse and Non-Suicidal Self-Injury Among Chinese Undergraduates: The Role of Only-Child Status[J]. *Int J Environ Res Public Health*, 2019, 16(20):4023.

[33] Xi MY. Research on the differences in social support between only child and non-only-child undergraduates[J]. *Nanyang Norm. Univ*, 2012, 11: 102-104.

[34] Schore AN. Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health[J]. *Infant Mental Health Journal*, 2001, 22(1-2):7-66.

[35] Martin J, Raby KL, Labella MH, et al. Childhood abuse and neglect, attachment states of mind, and non-suicidal self-injury[J]. *Attachment & Human Development*, 2017, 19(5): 425-446.

[36] Stagaki M, Nolte T, Feigenbaum J, et al. The mediating role of attachment and mentalising in the relationship between childhood maltreatment, self harm and suicidality[J]. *Child Abuse Negl*, 2022, 128:105576.

[37] Haid-Stecher N, Sevecke K. Belastende Kindheitserfahrungen und selbstverletzendes Verhalten – die Rolle der Emotionsregulation[J]. *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 2019, 68(7):623-638.

[38] Titelius EN, Cook E, Spas J, et al. Emotion Dysregulation Mediates the Relationship Between Child Maltreatment and Non-Suicidal Self-Injury[J]. *J Aggress Maltreat Trauma*, 2018, 27(3): 323 -331.

[39] Thomassin K, Shaffer A, Madden A, et al. Specificity of childhood maltreatment and emotion deficit in nonsuicidal self-injury in an inpatient sample of youth- ScienceDirect[J]. *Psychiatry Research*, 2016, 244:103-108.

[40] Andersson H, Aspeqvist E, Dahlström Ö, et al. Emotional Dysregulation and Trauma Symptoms Mediate the Relationship Between Childhood Abuse and Nonsuicidal Self-Injury in Adolescents[J]. *Front Psychiatry*, 2022, 28(13): 897081.

[41] Glassman LH, Weierich MR, Hooley JM, et al. Child maltreatment, non-suicidal self-injury, and the mediating role of self-criticism[J]. *Behaviour Research & Therapy*, 2007, 45(10): 2483-2490.

[42] Swannell S, Martin G, Page A, Hasking P, Hazell P, Taylor A, Protani M. Child maltreatment, subsequent non-suicidal self-injury and the mediating roles of dissociation, alexithymia and self-blame[J]. *Child Abuse Negl*, 2012, 36(7-8):572-84.

[43] Goldberg LR. The Curious Experiences Survey, a revised version of the Dissociative Experiences Scale: Factor structure, reliability, and relations to demographic and personality variables[J]. *Psychological Assessment*, 1999, 11(2): 134.

[44] Franzke I, Wabnitz P, Catani C. Dissociation as a Mediator of the Relationship Between Childhood Trauma and Nonsuicidal Self-Injury in Females: A Path Analytic Approach[J]. *J Trauma Dissociation*, 2015, 16(3): 286-302.

[45] Almeida CM, Horta MP. Self-Esteem and Anger in Borderline Patients With Self-Injury Behavior[J]. *The Journal of Nervous and Mental Disease*, 2018: 206, 251-257.

[46] Wang S, Xu H, Zhang S, et al. Mediating effects of self-esteem in the relationship between childhood maltreatment and non-suicidal self-injury among adolescents: The roles of sex and only-child status[J]. *Social Science & Medicine*, 2020, 249: 1-6.

[47] Chen X, Wen X, Tang HM, et al. A Meta-analysis of the association between non-suicidal self-injury and child sexual abuse [J]. *School Health in China*, 2017, 07: 1018-1022.